REMARKS

Claims 1-16 and 19-26 are currently pending. Claims 1-3, 6-16, and 19-26 are withdrawn from consideration and are canceled herein without prejudice. Claim 4 is amended herein to clarify the claimed subject matter. Claim 5 is canceled herein without prejudice. New claims 27-32 are presented herein. Accordingly, instant claim 4 and new claims 27-32 are under consideration.

Any amendment, however, is not to be construed as abandonment of any subject matter of the originally filed application. Accordingly, it is to be understood that Applicant reserves the right to reintroduce subject matter deleted from the application by the foregoing amendments and to file one or more divisional, continuation, and/or continuation in part applications directed to such subject matter.

For the sake of clarity, support for amendments to the claims and specification is identified using the paragraph numbering set forth in U.S. Application Publication No. 2006-0035233, which corresponds to the present specification.

Support for amendment to the claims is found throughout the specification and in the original claims. Specifically, support for amendment to claim 4 is found, for example, in original claim 4 and in paragraph [0069], wherein support for the term sequencing errors is found; in paragraphs [0049], [0082], and [0104], wherein support for the recited density of immobilized template polynucleotides is found; in paragraph [0071], wherein support for synthesizing a complementary copy of a template is found; and paragraphs [0069] and [0072], wherein support for resequencing is found. No issue of new matter is introduced by these amendments.

Support for new claims 27-32 is found throughout the specification and in the original claims. Specifically, support for new claims 27 and 28 is found in original claim 4 and paragraphs [0014]-[0024]. Support for new claim 29 is found in original claim 4 and paragraph [0021]. Support for new claim 30 is found in original claim 4 and paragraph [0103]. Support for new claim 31 is found in original claim 4 and paragraph [0071]. Support for new claim 32 is found in original claim 4 and paragraph [0108]. No issue of new matter is introduced by this amendment.

Applicant is submitting herewith a Sequence Listing which, it is believed, brings the specification into compliance with the sequence rules. Support for the Sequence Listing is found throughout the originally filed specification and in Figures 3-5. Accordingly, no issue of new matter is hereby introduced. A paper copy and computer readable format (CRF) copy of the Sequence Listing are attached hereto, along with a separate Amendment directing their entry into the record, and statement that the content of the paper and CRF copies are the same and include no new matter.

Sequence Compliance

The Examiner has indicated that the specification and figures contain nucleotide sequences comprising ten or more nucleotides. Responsive thereto, Applicant has reviewed the specification and figures and believes that nucleotide sequences mentioned therein are identified with sequence identifiers and are listed in the Sequence Listing submitted herewith.

Rejections under 35 U.S.C. § 112

Claims 4-5 are rejected under 35 U.S.C. § 112, second paragraph, for alleged indefiniteness. Claim 4 is amended herein to delete the allegedly indefinite subject matter. Claim 5 is canceled herein. In view of the amendments to the claims, the rejection, as it applied to claims 4-5 is obviated.

In view of the amendments to the claims, Applicant respectfully requests reconsideration and withdrawal of the rejection of the claims under 35 USC § 112, second paragraph.

Rejections under 35 USC § 103

Claim 4 is rejected under § 103(a) as allegedly unpatentable over Lackey et al. [United States Patent Number (USPN) 5,652,126] in view of Cheeseman (USPN 5,302,509). In view of the clarifying amendments to the pending claims and arguments presented herein, this rejection is respectfully traversed.

Claim 4 is amended herein to clarify that the claimed method is directed to reducing sequencing errors by sequencing, recovering and resequencing a single-stranded template nucleic acid, wherein the method comprises (a) forming an array of immobilised single-stranded template nucleic acid molecules wherein the density of immobilised single-stranded template nucleic acid molecules is 10^6-10^9 different template sequences per cm^2; (b)determining the sequences of the immobilised single-stranded template nucleic acid molecules by synthesising a complementary copy of the template sequences, thereby performing a first round of sequencing; (c) removing the complementary synthetic strand; and (d) performing a second round of sequencing of the immobilised single-stranded template nucleic acid molecules, wherein comparison of first and second rounds of sequencing of each immobilized single-stranded template nucleic acid molecule reduces sequencing errors. The instantly claimed invention, therefore, differs from the combined teachings of Lackey et al. and Cheeseman et al. in several respects.

At the outset, Lackey et al. fail to teach or suggest an array of immobilised single-stranded template nucleic acid molecules. Cheeseman et al., moreover, fails to remedy this deficiency. The combined teachings of these references are, furthermore, defective with respect to teaching or suggesting an array of immobilised single-stranded template nucleic acid molecules wherein the density of immobilised single-stranded template nucleic acid molecules is 10^6-10^9 different template sequences per cm^2. That being the case, Applicant asserts that these references fail to teach several recited elements of the instant claims.

Moreover, the combined teachings of these references also fail to teach a first and a second round of sequencing. Indeed, Lackey et al. are silent with respect to sequencing the templates utilized therein to generate phosphorothioate oligonucleotides. There is, in fact, no reason to teach or suggest sequencing a template used for this purpose because the sequence of the template is already known. As described therein, the method of Lackey et al. is directed to methods of cleaving phosphorothioate oligonucleotides to generate relatively cleavage resistant phosphorothioate oligonucleotides having properties that facilitate their separation and purification after synthesis. The Examiner, however, relies on Cheeseman et al. for teaching that

there are several benefits of sequencing while elongation is taking place. Responsive thereto, Applicant asserts that the Examiner has failed to provide sufficient evidence to demonstrate that there is any motivation to combine the teachings of Lackey et al. and Cheeseman et al. to arrive at the present invention. A skilled practitioner would have no motivation to sequence a template of Lackey et al. because the sequence of the template is already known by definition at the outset of the method as taught therein. It therefore follows that there is absolutely no motivation to resequence a template of defined sequence such as that taught by Lackey et al. It is even more unreasonable to combine the teachings of these two references to arrive at the present invention, which calls for comparing the sequences determined in the first and second sequencing rounds to reduce sequencing errors. That being the case, the combination of the teachings of Lackey et al. and Cheeseman et al. fails to lead an ordinarily skilled practitioner to the presently claimed invention.

In view of the above arguments, the Examiner is respectfully requested to reconsider the validity of the rejection of claim 4 under 35 U.S.C. §103 and withdraw the rejection.

Claim 5 is rejected under 35 USC § 103(a) as allegedly unpatentable over Lackey (USPN 5,652,126) in view of Cheeseman (USPN 5,302,509) and further in view of Chernov et al. (United States Patent Application No. 2004/0086866; filed 10/2002). Claim 5 is canceled herein, thereby obviating any rejection of this claim.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 4 and 5 under 35 U.S.C. §103.

Fees

No additional fees are believed to be necessitated by this amendment. However, should this be an error, authorization is hereby given to charge Deposit Account No. 11-1153 for any underpayment or to credit any overpayment.

Conclusion

It is submitted, therefore, that the claims are in condition for allowance. No new matter

has been introduced. Allowance of all claims at an early date is solicited. In the event that there are any questions concerning this amendment, or application in general, the Examiner is respectfully urged to telephone the undersigned so that prosecution of this application may be expedited.

Respectfully submitted,

Sarah J. Fashena

Sarah J. Fashena, PhD.
Agent for Applicant(s)
Registration No. 57,600

KLAUBER & JACKSON
411 Hackensack Avenue
Hackensack, New Jersey 07601
(201) 487-5800

April 1, 2008

Enclosures: Petition for a Three-Month Extension of Time
Sequence Listing [paper copy and computer readable format (CRF)];
separate Amendment directing their entry into the record and statement supportive thereof
Supplemental Information Disclosure Statement